Volunteer Lake Assessment Program Individual Lake Reports

ROCKYBOUND POND, CROYDON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	529	**Max. Depth (m):**	9.3	**Flushing Rate (yr^{-1}):**	0.7
Surface Area (Ac.):	65	**Mean Depth (m):**	4.5	**P Retention Coef:**	0.73
Shore Length (m):		**Volume (m^3):**	1,166,500	**Elevation (ft):**	1055

TROPHIC CLASSIFICATION

Year	Trophic class
1989	OLIGOTROPHIC
2006	MESOTROPHIC

KNOWN EXOTIC SPECIES

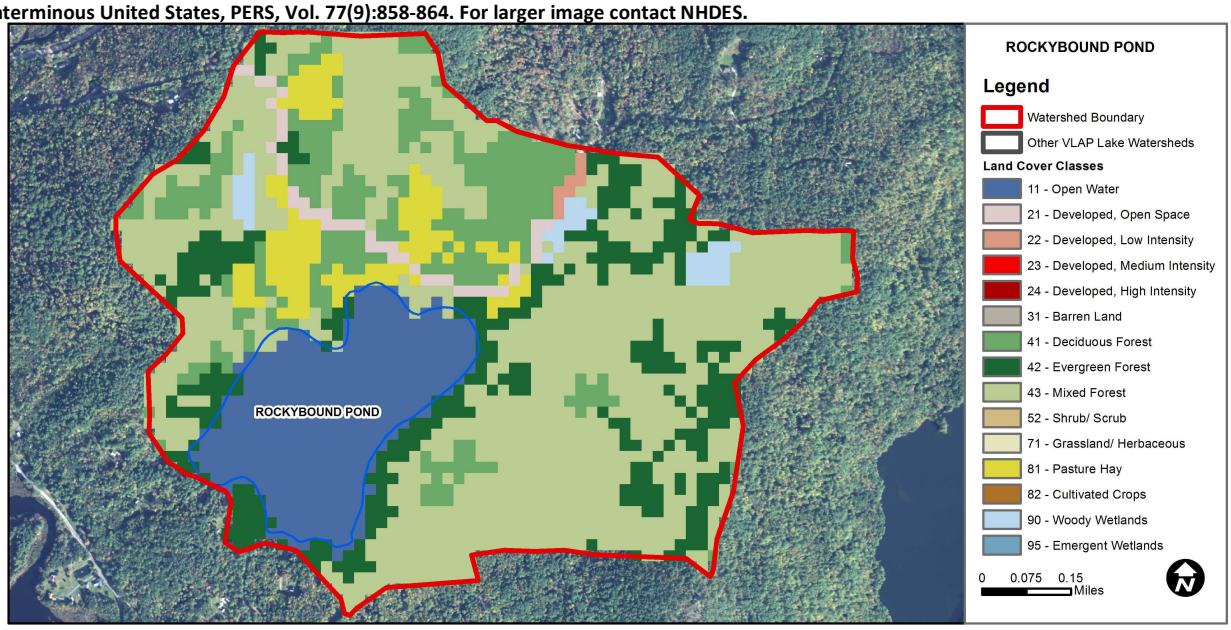
Curly Leaf Pondweed

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	14.8	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	1.97	Deciduous Forest	13.46	Pasture Hay	5.88
Developed-Low Intensity	0.36	Evergreen Forest	15.12	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	46.84	Woody Wetlands	1.71
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

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Rockybound Pond, Croydon

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels remained stable and low throughout the summer. Average chlorophyll level was stable with 2013 and much less than the state median. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and tributary conductivity levels were stable from June to August and slightly greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity since monitoring began.
- **E. coli:** No E. coli were present in Public Beach Inlet.
- **Total Phosphorus:** Epilimnetic phosphorus levels were very low, much less than the state median, and remained stable from June to August. Historical trend analysis indicates highly variable epilimnetic phosphorus since monitoring began. Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus levels were slightly higher than normal in June, but decreased to lower levels in August and the average Hypolimnetic phosphorus level was the lowest measured since 1999. Public Beach Inlet phosphorus levels were low and data analysis indicates phosphorus levels have significantly increased (improved) at this station since monitoring began, in particular, phosphorus levels have remained lower since 2009. All other tributary phosphorus levels were low.
- **Transparency:** Transparency was slightly below average for the pond, but was better than the state median. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **Turbidity:** Epilimnetic turbidity was low, and Metalimnetic turbidity was low in June, increased slightly at the beginning of August likely due to algal growth at that depth, and then decreased at the end of August. Hypolimnetic turbidity was lower than average for that station and remained stable from June to August. Public Beach Inlet, Homa, Lewis, and Leslie Inlet experienced slightly elevated turbidities following a significant rain event at the end of August.
- **pH:** Epilimnetic and Metalimnetic pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began. Hypolimnetic pH was less than desirable. Average tributary pH levels were within the desirable range.
- **Recommended Actions:** The increasing conductivity trend is likely a result of the use of winter de-icing materials. Encourage local road agents to obtain a Voluntary NH Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification Program. For more information visit www.t2.unh.edu/green-snowpro-training-and-certification. Transparency has significantly decreased and may be the result of the increased frequency and intensity of storm events. This highlights the importance of minimizing stormwater runoff from lake and watershed properties. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. The significantly decreasing phosphorus levels in Public Beach Inlet are a great sign and we hope to see that continue. Keep up the great work!

Station Name	Table 1. 2014 Average Water Quality Data for ROCKYBOUND POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	8.67	2.14	65.7		5	4.50	5.33	0.75	6.96
Metalimnion			66.8		8			1.05	6.81
Hypolimnion			69.7		10			1.66	6.29
W1 Public Beach Inlet			66.2	0	6			1.10	6.85
W3 Homa			66.5		6			1.05	6.90
W5 Lewis			64.8		6			0.87	6.93
W6 Outlet			66.2		7			1.06	6.90
W8 Leslie Inlet			65.2		6			0.97	6.96

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.